IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	)	Atty. Docket No.: 03493.00347
Mikhail Boroditsky et al.	)	(IDS 2000-0578-DIV)
Div. Serial No.: 09/973,699	)	Group Art Unit: Unassigned
Filed: Herewith	)	Examiner: Unassigned

For: **METHOD FOR PROVIDING HIGH CONNECTIVITY COMMUNICATIONS OVER A PACKET-SWITCHED OPTICAL RING NETWORK USING COMPOSITE PACKETS (as amended)**

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D. C. 20231
Attn: Box Application

Sir:

Prior to examination and calculation of any claim fees, please amend the instant application as follows:

IN THE TITLE:

Please replace the existing title with the amended title as follows:

--METHOD FOR PROVIDING HIGH CONNECTIVITY COMMUNICATIONS OVER A PACKET-SWITCHED OPTICAL RING NETWORK USING COMPOSITE PACKETS--

IN THE SPECIFICATION:

Please insert on line 1, --This application is a Divisional of U.S. Application Serial No. 09/973,699--.

IN THE CLAIMS:

Please cancel claims 1-37, and replace with newly added claims 38-71:

--38. (New) A method for providing high connectivity communications over an optical ring network comprising the steps of:

generating a set of serial packets by a tunable laser;

stacking said set of serial packets to form a first composite packet by a stacker,

performing a serial-to-parallel conversion process such that said first composite packet is in a single photonic time slot;

flipping an optical crossbar switch connecting a core optical ring to said stacker to a cross state;

adding said first composite packet to said core optical ring via said optical crossbar switch such that said first composite packet propagates on said core optical ring for distribution to said first composite packet's destination;

at least one second composite packet propagating on said core optical ring for distribution to said second composite packet's destination;

locating said destination of said second composite packet;

dropping said second composite packet at said destination for said second composite packet;

serializing said second composite packet by an unstacker into a serial stream of packets; and

distributing said serial stream of packets.

39. (New) The method according to claim 38, wherein said unstacker performs a parallel-to-serial conversion process to form said serial stream of packets.

40. (New) The method according to claim 38, wherein said unstacker performs a demultiplexing process to form said serial stream of packets.

41. (New) The method according to claim 38, wherein said second composite packet bypasses a node of said core optical ring when said optical crossbar switch coupled to said node is in a bar state.

42. (New) The method according to claim 38, wherein said stacker and said unstacker form a single device by sharing some components.

43. (New) The method according to claim 38, wherein said stacking step entails a time delay.

44. (New) The method according to claim 38, wherein said serializing step entails a time delay.

45. (New) The method according to claim 38, wherein said generating step generates a set of serial packets, each packet at a different wavelength in a sequential manner.

46. (New) The method according to claim 38, wherein said generating step generates a set of serial packets, each packet at a different wavelength in an arbitrary sequence.

47. (New) The method according to claim 40, wherein said demultiplexing process is performed by a WDM.

48. (New) A method for providing high connectivity communications over an optical ring network comprising the steps of:

generating a set of serial packets by a tunable laser;

stacking said set of serial packets to form a first composite packet by said stacker;

performing a serial-to-parallel conversion process such that said first composite packet is in a single photonic time slot;

flipping an optical crossbar switch connecting a core optical ring to said stacker to a cross state;

adding said first composite packet to said core optical ring via said optical crossbar switch such that said first composite packet propagates on said core optical ring for distribution to said first composite packet's destination;

at least one second composite packet circulating around said core optical ring for distribution to said second composite packet's destination;

locating said destination of said second composite packet;

dropping said second composite packet at said destination for said second composite packet; and

distributing said composite packet by wavelength.

49. (New) A method for accomplishing transparent bypass over a high connectivity communications optical ring network comprising the steps of:

determining that a first composite packet, propagating on a core optical ring, is to be dropped at a node of said core optical ring, said node having an optical crossbar switch, said optical crossbar switch further coupled to a subtending system such that said first composite packet is able to be further distributed on said subtending system;

flipping said optical crossbar switch into a bar state;

dropping said first composite packet via said flipped optical crossbar switch;

receiving by a first WDM of said first composite packet;

filtering and separating, by said first WDM wavelengths of parallel packets comprising said first composite packet, that are to be further distributed on said subtending system;

serializing said parallel packets;

further distributing said serialized packets;

forwarding wavelengths not destined for further distribution on said subtending system to a second WDM; and

outputting said wavelengths not destined for further distribution back onto said core optical ring in a vacant photonic time slot via said optical crossbar switch in said cross state.

50. (New) The method according to claim 49, further comprising the steps of:

generating a serial stream of packets;

forming a second composite packet in a single photonic time slot from said serial stream of packets; and

interleaving said second composite packet with said wavelengths not destined for further distribution on said subtending system prior to outputting said wavelengths not destined for

further distribution on said subtending system back onto said core optical ring.

51. (New) A method for accomplishing transparent bypass over a high connectivity communications optical ring network comprising the steps of:

dropping a first composite packet comprising a plurality of parallel packets at a node of a core optical ring via an optical crossbar switch in a cross state;

serializing and further distributing a first portion of said plurality of parallel packets; and

passing a second portion of said plurality of parallel packets through and outputting said second portion of said plurality of parallel packets back onto said core optical ring.

52. (New) The method according to claim 51, wherein said serializing step is accomplished via a plurality of three – and four-port circulators and a plurality of fiber Bragg gratings (FBGs).

53. (New) The method according to claim 52, wherein said passing step is accomplished via said plurality of three- and four-port circulators and said plurality of FBGs.

54. (New) The method according to claim 51, further comprising the steps of:

creating a second composite packet to be added to said core optical ring; and

interleaving said second composite packet with said second portion of said plurality of parallel packets prior to said second portion of parallel packets being output onto said core optical ring.

55. (New) A method for providing high connectivity communications over an optical ring network comprising the steps of:

generating a set of serial packets;

forming a first composite packet from said set of serial packets, said first composite packet being parallel packets in a single photonic time slot;

adding said first composite packet to a core optical ring in a vacant photonic time slot via an optical crossbar switch;

dropping a second composite packet propagating on said core optical ring at a node for further distribution via a subtending system; and

serializing said second composite packet dropped at said node.

56. (New) The method according to claim 55, wherein said generating step is performed by a tunable laser.

57. (New) The method according to claim 55, further comprising the step of a providing enhanced services including packet formation, packet insertion, packet extraction and optical crossbar switch control via a control channel.

58. (New) The method according to claim 57, wherein said control channel is out-of-band.

59. (New) The method according to claim 55, wherein said forming step is performed serially.

60. (New) The method according to claim 55, wherein said forming step is performed is parallel.

61. (New) The method according to claim 55, wherein said serializing step is performed serially.

62. (New) The method according to claim 55, wherein said serializing step is performed in parallel.

63. (New) The method according to claim 55, wherein devices performing said forming step and said serializing step are both serial and share optical components.

64. (New) The method according to claim 55, wherein devices performing said forming step and said serializing step are both parallel and share optical components.

65. (New) The method according to claim 55, wherein a transparent bypass scheme accomplishes a bypass from switch output to switch input.

66. (New) The method according to claim 65, wherein a first portion of said second composite packet is distributed to a destination and a second portion of said second composite packet is routed back onto said core optical ring bypassing said stacker.

67. (New) The method according to claim 66, wherein said second portion of said second composite packet is interleaved with a third composite packet created by said stacker.

68. (New) The method according to claim 65, wherein a first portion of said second composite packet is distributed to a destination and a second portion of said composite packet is routed back onto said core optical ring by passing through said stacker.

69. (New) The method according to claim 68, wherein said second portion of said second composite packet is interleaved with a third composite packet created by said stacker.

70. (New) The method according to claim 55, wherein said node has optical output and said subtending system is driven optically by output of said optical crossbar switch.

71. (New) The method according to claim 69, wherein said node further comprises transceivers to receive said optical output of said node and to retransmit said optical output

said optical crossbar switch to said subtending system.--

IN THE ABSTRACT:

Please replace the Abstract with the following:

-- A method for providing high connectivity communications over a packet-switched optical ring network comprises a core optical ring having at least one node, the node being coupled to a subtending system by an optical crossbar switch, a source for generating a set of packets, a stacker for forming a first composite packet from the set of serial packets, the stacker coupled to the optical crossbar switch, and the stacker further coupled to the source for generating the set of packets, the first composite packet being parallel packets in a single photonic time slot, the first composite packet to be added to the core optical ring in a vacant photonic time slot via the optical crossbar switch, a second composite packet propagating on the core optical ring destined to be dropped at the node for further distribution on the subtending system via the optical crossbar switch, an unstacker for serializing the second composite packet dropped at the node, the unstacker coupled to the optical crossbar switch and a detector for distributing the serialized packets to a further destination by the subtending system. The source for generating the set of packets may be generated, for example, serially by a tunable laser or may be generated, for example, in parallel by an array of lasers.--

REMARKS

It is believed that no fee is required to make this a complete and timely filing. However, if a fee is required, the Commissioner is authorized to charge our Deposit Account No. 19-0733.

Respectfully submitted,

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Dated: November 29, 2001

MARKED-UP VERSION OF AMENDMENT

IN THE TITLE:

Please amend the existing title as follows:

~~SYSTEM~~ METHOD FOR PROVIDING ~~HIGHT~~ HIGH CONNECTIVITY COMMUNICATIONS OVER A PACKET-SWITCHED OPTICAL RING NETWORK USING COMPOSITE PACKETS

IN THE CLAIMS:

Claims 38-71 have been newly added.

IN THE ABSTRACT:

Please amend the Abstract as follows:

A ~~system~~ method for providing high connectivity communications over a packet-switched optical ring network comprises a core optical ring having at least one node, the node being coupled to a subtending system by an optical crossbar switch, a source for generating a set of packets, a stacker for forming a first composite packet from the set of serial packets, the stacker coupled to the optical crossbar switch, and the stacker further coupled to the source for generating the set of packets, the first composite packet being parallel packets in a single photonic time slot, the first composite packet to be added to the core optical ring in a vacant photonic time slot via the optical crossbar switch, a second composite packet propagating on the core optical ring destined to be dropped at the node for further distribution on the subtending system via the optical crossbar switch, an unstacker for serializing the second composite packet dropped at the node, the unstacker coupled to the optical crossbar switch and a detector for

distributing the serialized packets to a further destination by the subtending system. The source for generating the set of packets may be generated, for example, serially by a tunable laser or may be generated, for example, in parallel by an array of lasers.